

Organizational Climate, Occupational Stress, and Employee Mental Health: Mediating Effects of Organizational Efficiency

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Objective: To determine whether the relationship between organizational climate and employee mental health is consistent (ie, invariant) or differs across four large hospitals, and whether organizational efficiency mediates this relationship. **Methods:** Participants (total $N = 5316$) completed validated measures of organizational climate variables (social climate, participatory management, goal clarity, and performance feedback), organizational efficiency, occupational stress, and mental health. **Results:** Path analysis best supported a model in which organizational efficiency partially mediated relationships between organizational climate, occupational stress, and mental health. **Conclusions:** Focusing on improving both the psychosocial work environment and organizational efficiency might contribute to decreased employee stress, improved mental well-being, and organizational performance.

Transformations in working life and changing competitive pressures have important implications for organizational work climate, employee somatic and mental health, as well as organizational performance.¹⁻⁴ Although numerous studies have revealed the aspects of organizational climate that are associated with occupational stress and employee mental health, less is known about the mechanisms through which these effects are transmitted.⁴⁻⁶ Furthermore, existing research has not formally examined the extent to which relationships between organizational climate, occupational stress, and employee mental health are consistent across organizations, thus limiting the ability to generalize findings and propose interventions.⁷ In the present research, we examined whether pathways linking organizational climate to occupational stress and employee mental health were the same (ie, invariant) across four large hospitals. In addition, we explored whether mental health effects of organizational climate were transmitted by perceived organizational efficiency—a largely malleable psychological variable that has been previously linked to employee mental health and organizational productivity.^{8,9}

ORGANIZATIONAL CLIMATE

Organizational climate generally reflects employees' perceptions of the significance and meaning of their work environment.^{10,11} Often, organizational climate is used to link the characteristics of an organization to the behavior of its members.¹² Research has shown that employee perceptions of work environments are individually quantifiable,^{13,14} provide a valid consensus of shared work environments,¹⁵ and also predict numerous important individual and organizational outcomes.^{10,12,16}

A considerable body of work has examined links between organizational climate variables and performance.^{10,17} Nevertheless,

theory and research have increasingly emphasized that organizational climate is also an important determinant of employee health and well-being.^{18,19} In particular, organizational climate predicts susceptibility to physical illnesses²⁰ and has also been related to the emotional health and mental well-being of employees, especially in terms of anxiety and depression.^{4,21-23} Poor employee mental health can imply sizeable costs to organizations²⁴ and also comprises an important risk factor for physical illness.²⁵

Evidence suggests that the effect of organizational climate on mental health may occur through links to occupational stress.^{19,26} Stress effects of organizational climate have been shown to possess an underlying physiological basis²⁷ and to predict important stress-related health behaviors, such as distraction, irritability, and error proneness.^{19,28-31}

Although links between organizational climate and employee mental health are well supported, relatively little is known about the extent to which these relationships are consistent across organizations. In particular, no known studies have examined the cross-organizational stability of these links by using comprehensive and formal tests of equivalency. One way of formally addressing cross-organizational stability may be to examine the invariance (ie, equivalency) of relationships among organizational climate, stress, and mental health in multiple organizational contexts. *Invariance testing* is best known as a structural equation modeling procedure that can be used to assess whether measures and relationships function similarly among different groups.^{32,33} In addition, invariance testing has gained attention in organizational research by providing a method for analyzing similarities and differences in structural-level associations between constructs.³⁴ Within the context of organizational climate research, one use of invariance testing may be to formally assess the consistency of relationships with stress and mental health in multiple organizational contexts.

ORGANIZATIONAL EFFICIENCY AND OCCUPATIONAL STRESS

Another limitation of existing research is that comparatively little is known about mechanistic features of links between distinct organizational climate factors, for example, social support and supervisor feedback, and employee mental health. Furthermore, researchers have only recently begun to formally consider possible complementary links in the chain connecting organizational climates to employee well-being.^{35,36} Prior studies have suggested that organizational efficiency and occupational stress are inversely related.^{3,35,37} Nevertheless, a hitherto unconsidered possibility is that organizational efficiency may transmit the effects of organizational climate variables on occupational stress. Partial support for such a model was found in a study demonstrating beneficial effects from a joint employee-management–efficiency-enhancement intervention on job stress.³⁵ The same study also demonstrated a relationship between enhanced efficiency, decreased stress, and lower level of biomarkers of stress, as well as increased levels of antistress or restorative hormones. Thus, it is also reasonable to suspect that efficiency may mediate the impact of multiple aspects of organizational climate.³⁸ Despite the possible mechanistic importance of efficiency for occupational stress and health, formal examinations of these relationships have not yet been undertaken. Identifying the role that efficiency

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TABLE 1. Characteristics of Participating Hospitals and Staff Respondents

	Hospital A	Hospital B	Hospital C	Hospital D
Staff respondents (n)/total employees (N)	1,772/3,688	487/1,500	1,707/4,200	1,350/2,500
Staff age*				
<45 yrs/≥45 yrs (%)	30/70	58/42	57/43	50/50
Staff gender*				
Male/female (%)	16/84	20/80	17/83	13/87
Staff profession*				
Physicians (%)	18	12	10	15
Registered nurses (%)	48	35	35	28
Nurse assistants (%)	22	22	20	21
Others (%)	12	31	35	36
Type of hospital	University	Teaching	Teaching	Teaching
Ownership	Public	Private	Corporation owned by the county council	Public
Location	Central Sweden	Stockholm	Stockholm	Southern Sweden
No. of beds	591	302	603	375
Patient categories	Adults and children	Only adults	Adults and children	Adults and children
Inpatient care episodes/year	37,443	22,229	54,249	23,258
Outpatient care episodes/year	197,205	158,672	368,298	136,623

* $P < 0.001$.

plays is particularly important, given the potential to improve efficiency by enhancing organizational structures and processes.

In the present research, we examined links between four distinct aspects of organizational climate, occupational stress, and employee mental health. In addition, we examined whether perceived efficiency would mediate the effect of any or all of the four organizational climate variables on occupational stress and employee mental health. We operationalized organizational climate by using four distinct measures that included social climate, participatory management, goal clarity, and performance feedback. These four measures were selected since they have been associated with occupational stress and employee mental health.^{4,12,39–42} We expected that all four organizational psychological climate variables would be associated positively with mental health and inversely with occupational stress. Furthermore, we hypothesized that organizational climate would be positively associated with perceived efficiency and efficiency would mediate the effect of organizational climate variables on occupational stress and mental health. Finally, we included an exploratory hypothesis that these effects would be cross-organizationally consistent (ie, invariant).

METHODS

Participants and Procedure

Participants were recruited by the Swedish-based performance-assessment company, Springlife, and they all responded to an anonymous employee-satisfaction survey that was administered regularly during the early-2000 period. A total of 5316 employees responded to the survey. For details on response rates as well as hospital characteristics, see Table 1. Only anonymous data from these four hospitals were available to Springlife, and thus the samples were best characterized as convenience. Nevertheless, each sample was representative in terms of the respective hospitals' occupational composition and gender. Younger employees had a slightly lower response rate.

Measures

This study utilized the Quality-Work-Competence (QWC) survey instrument.^{43,44} The QWC is a broad organizational climate measure that captures individual employee's perceptions of his or her work environment. Psychometric studies suggest desirable character-

istics of the QWC such as strong concurrent and predictive validity. Validation research has included both prospective cause-and-effect studies and also simultaneous assessments of independent biological measures.^{29,35} Validation studies have involved large groups of respondents from Sweden, Great Britain, the United States, and Japan. The QWC has been used in numerous different organizational settings but predominantly in health care.^{37,43} Like many measures of organizational climate, the QWC assesses individual differences using a multifactorial conceptualization of organizational climate. In total, the QWC consists of 44 items that form nine scales. All items are answered by using an appropriately labeled four-point Likert-type response scale (eg, 1 = disagree strongly; 4 = agree completely), and scores for each subscale are created by summing appropriate items. The range of the scales is 0% to 100%. For all scales except Occupational Stress, higher values are more desirable. On the Occupational Stress scale, lower values are more desirable.

The current study focused on seven of the QWC scales described subsequently. Four of the scales measured organizational climate, while remaining scales measured organizational efficiency, occupational stress, and mental health. Table 2 presents means and bivariate associations within each hospital. Although item-level information was not provided, prior research has shown each of the QWC scales to be acceptably internally consistent.^{37,45}

Organizational climate

We utilized four scales of the QWC to assess employee perceptions of psychological climate. The Social Climate scale is composed of three items that measure employee perceptions of social support and cohesion among one's colleagues. A sample item is "there is a pleasant atmosphere at my workplace." The Participation scale contains six items measuring employees' perceived personal influence over and involvement in their work environment. A sample item includes "Do you have the opportunity to influence workplace decisions." The Goal Clarity scale is a four-item measure that attempts to capture the degree to which employees perceive workplace goals to be well defined, realistic, attainable, and measurable/assessable. A sample item includes "Goals are well-defined." Finally, the Performance Feedback scale is composed of three items that measure feedback received from one's immediate supervisor. Sample item

TABLE 2. Means, Standard Deviations, and Bivariate Associations Between Organizational Climate, Efficiency, Occupational Stress, and Mental Health Measures

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6	7
Hospital A (<i>N</i> = 1,772)									
1. Social climate	71.56 ^a	20.46	—						
2. Participation	69.90 ^a	18.37	0.39	—					
3. Goal clarity	53.66 ^a	24.57	0.32	0.44	—				
4. Feedback	56.92 ^a	23.94	0.35	0.33	0.33	—			
5. Efficiency	67.60 ^a	15.72	0.51	0.47	0.51	0.41	—		
6. Occupational stress	43.33 ^a ^{cd}	20.84	−0.21	−0.45	−0.35	−0.25	−0.36	—	
7. Mental health	72.20 ^a	22.05	0.27	0.31	0.22	0.21	0.28	−0.37	—
Hospital B (<i>N</i> = 487)									
1. Social climate	66.80 ^b	22.47	—						
2. Participation	66.62 ^b	21.89	0.48	—					
3. Goal clarity	61.43 ^b	26.57	0.42	0.46	—				
4. Feedback	54.21 ^{ab}	26.60	0.35	0.48	0.34	—			
5. Efficiency	63.82 ^{bc}	18.82	0.57	0.56	0.54	0.41	—		
6. Occupational stress	43.41 ^b	24.62	−0.41	−0.53	−0.40	−0.37	−0.50	—	
7. Mental health	75.78 ^{bc}	20.60	0.35	0.30	0.25	0.25	0.37	−0.44	—
Hospital C (<i>N</i> = 1,707)									
1. Social climate	72.28 ^a	20.11	—						
2. Participation	67.23 ^b	18.09	0.44	—					
3. Goal clarity	56.57 ^c	26.19	0.33	0.45	—				
4. Feedback	56.30 ^a	23.82	0.28	0.36	0.36	—			
5. Efficiency	66.07 ^b	17.08	0.51	0.51	0.50	0.38	—		
6. Occupational stress	40.20 ^c	21.55	−0.21	−0.45	−0.27	−0.18	−0.34	—	
7. Mental health	73.01 ^{ab}	22.55	0.29	0.32	0.24	0.15	0.32	−0.32	—
Hospital D (<i>N</i> = 1,350)									
1. Social climate	71.38 ^a	20.33	—						
2. Participation	68.47 ^{ab}	20.04	0.44	—					
3. Goal clarity	55.57 ^{ac}	25.61	0.35	0.51	—				
4. Feedback	51.22 ^b	26.16	0.35	0.46	0.49	—			
5. Efficiency	64.40 ^c	17.29	0.55	0.53	0.55	0.43	—		
6. Occupational stress	38.09 ^d	20.37	−0.27	−0.45	−0.35	−0.24	−0.38	—	
7. Mental health	76.60 ^c	20.44	0.31	0.38	0.31	0.23	0.40	−0.36	—

All correlations significant at $P < 0.01$ or better. Across samples, parallel means with non-common superscripts are significantly different at $P < 0.05$ according to Bonferroni post hoc. Superscripts denote comparison between hospitals. For each variable, when hospitals have the same superscript, for example, a (eg, social climate for hospitals A, C, and D), they do not differ on that variable. If they do not share superscript, they differ significantly on that variable (social climate for hospital B is marked with the superscript b. Since no other hospital has this superscript for this variable, hospital B differs).

includes “Does your manager make clear what is expected of you in your work.”

Efficiency

The Efficiency scale of the QWC is a measure of the employee's perception of how well work processes function at their workplace. This four-item scale is separate from the four organizational climate scales discussed previously. A sample question is “Resources are optimally used.” This scale has demonstrated strong concurrent validity with other independent assessments of productivity and efficiency, and targeted efficiency-enhancement interventions result in increased scoring on this scale.³⁵

Occupational stress

The Occupational Stress scale consists of four items related to employee perceptions of stress in a service- and knowledge-based workplace. These items were originally developed in focus groups

involving health care personnel and other knowledge workers who felt traditional questions of occupational stress, for example, having to work fast did not reflect work practices characteristic of postindustrial settings.⁴⁶ Sample questions include “Do you have time to plan your work tasks ahead of time?”

Mental health

The Mental Health scale summarizes the employee's ratings of general mental health and energy. The scale includes five items that measure the extent to which employees had experienced restlessness, irritability, worry, moodiness/depression, and difficulty concentrating in the past month.

Data Analysis

Relationships between organizational climate, organizational efficiency, occupational stress, and mental health were examined by using structural equation modeling. Because only total subscale

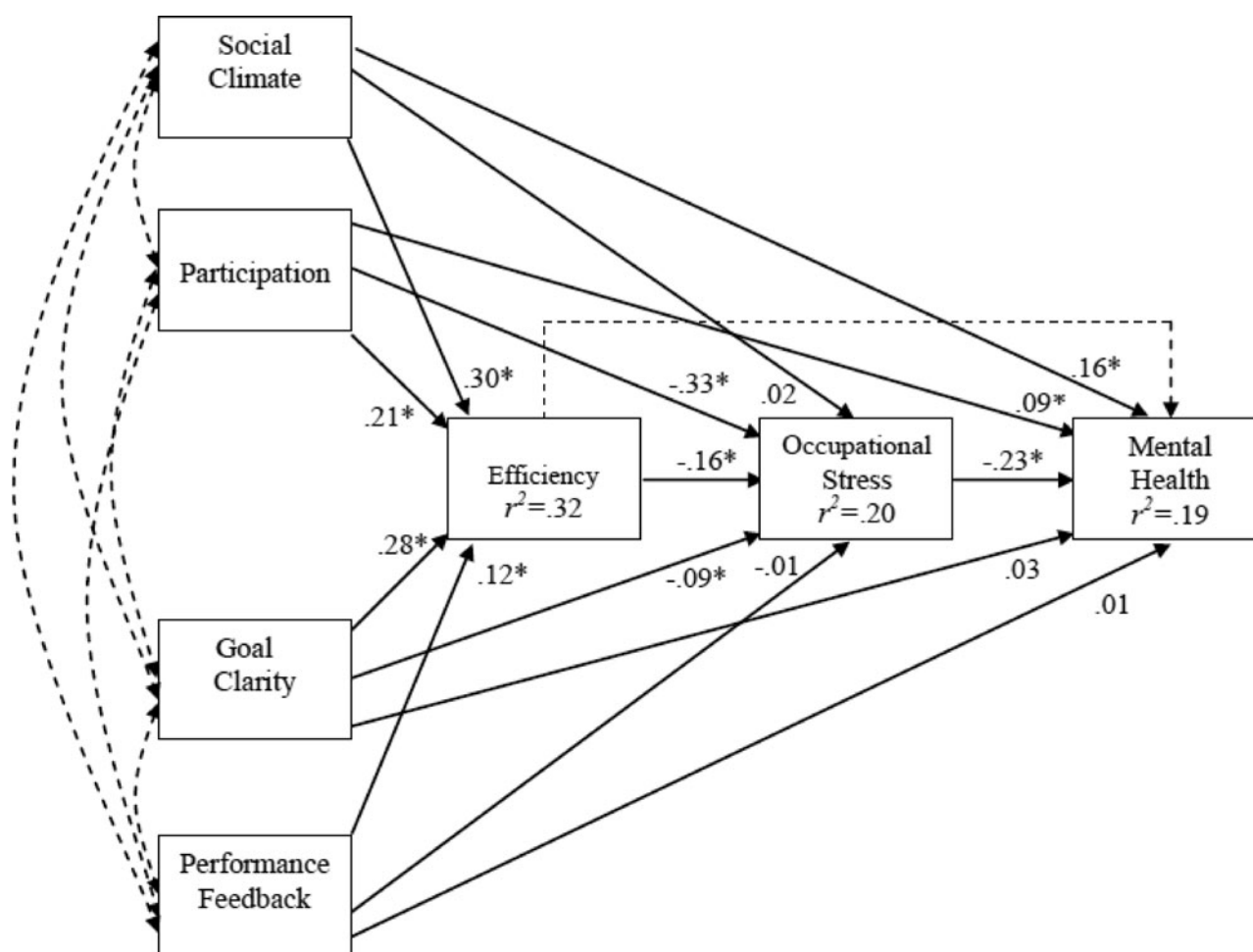


FIGURE 1. Path estimates for final model. Structural estimates portrayed for only invariant, that is, equivalent, effects. Dotted lines indicate noninvariant relationships with heterogeneous structural estimates. The r^2 is the average proportion of variance explained (* $P < .01$).

scores for each employee were available to us, these analyses were performed as manifest-level path analyses. The construct validity of the QWC subscales utilized in the present study has been previously established.^{37,45} We used LISREL 8.80⁴⁷ (Scientific Software International, Lincolnwood, Illinois) and maximum likelihood estimation for all models. In addition to χ^2 values, we assessed the viability of all theoretical models by using several established fit indices. These included the Non-Normed Fit Index (NNFI),⁴⁸ the Comparative Fit Index (CFI)^{49,50} and the standardized root-mean-square residual (SRMR)^{51,52}

To select the best-fitting model, we performed three sets of model comparisons (Fig. 1). First, we specified a model in which climate variables predicted efficiency and efficiency indirectly predicted mental health through stress. To evaluate the proposed ordering of this mediation chain, the initial model was compared with an alternative model in which climate variables predicted stress and stress indirectly predicted mental health through efficiency (ie, stress and efficiency were reversed). Because these models contained an identical number of df , formal comparisons utilized Akaike's information criterion, with the preferred model having a smaller Akaike's information criterion value.⁵³ Next, we evaluated possible direct paths from climate variables to occupational stress and mental health, and from efficiency to mental health. Finally, to elucidate cross-hospital differences, we performed a series of in-

variance tests. Among its many possible uses,^{32,33} invariance testing provided a method for assessing the similarity of relationships within the context of multigroup analysis.

RESULTS

Model descriptions and formal comparisons are presented in Table 3. The Initial Efficiency Effects model (model 1) fits better than the alternative Stress Effects model (model 2). In addition, adding direct (unmediated) effects from efficiency to mental health (model 3) and from climate variables to stress (model 4) and mental health (model 5) further improved the model. Thus, a model in which efficiency most proximally mediated the effect of climate variables on stress and which all possible direct effects of climate variables were included formed the baseline for subsequent tests of invariance.

To examine the cross-organization consistency of these effects, we first specified an Invariant Climate model (model 6) in which we constrained interrelations between the four organizational climate variables to equivalency across all four hospitals. The fit of this model was significantly worse, and we thus allowed unique associations within each of the four hospitals between-organizational climate measures in all subsequently estimated models. An Invariant Efficiency model (model 7) suggested no detriment to overall fit in specifying equivalent relationships between organizational climate measures and efficiency across hospitals. Similarly, the Invariant

TABLE 3. Interpersonal Work Environment Measures Predicting Efficiency, Occupational Stress, and Mental Health: Model Comparisons ($N = 5,316$)

Model	Description	χ^2	df	NNFI*	CFI	SRMR
Identification of variable order	Models designed to identify ordering of efficiency and stress.					
1. Efficiency Effects model	Organizational climate predicting efficiency, and efficiency indirectly predicting mental health through stress.	1,523.07	64	0.72	0.79	0.14
2. Stress Effects model†	Organizational climate predicting stress, and stress indirectly predicting mental health through efficiency.	2,244.74	64	0.56	0.66	0.18
Identification of unmediated effects	Models designed to identify unmediated organizational climate effects					
3. Direct Efficiency to Mental Health	Model 1 plus efficiency directly predicting mental health	1,322.06	60	0.74	0.82	0.11
4. Direct Climate to Mental Health	Model 3 plus organizational climate directly predicting mental health	939.60	44	0.75	0.87	0.09
5. Direct Mental Health and Stress	Model 4 plus organizational climate directly predicting stress	825.91	28	0.66	0.89	0.08
Identification of path invariance	Models designed to identify invariance of direct and indirect effects.					
6. Invariant Climate‡	Model 5 plus organizational climate interrelations invariantly constrained	906.38	46	0.78	0.88	0.09
7. Invariant Efficiency	Model 5 plus organizational climate invariantly predicting efficiency	829.00	40	0.76	0.89	0.08
8. Invariant Occupational Stress	Model 7 plus organizational climate invariantly predicting stress	842.13	52	0.82	0.89	0.08
9. Invariant Mental Health	Model 8 plus organizational climate invariantly predicting mental health	852.07	64	0.85	0.89	0.08
10. Efficiency to Stress	Model 9 plus efficiency equivalently predicting stress	857.35	67	0.86	0.89	0.08
11. Efficiency to Mental Health‡	Model 10 plus efficiency equivalently predicting mental health	865.13	70	0.86	0.89	0.08
12. Stress to Mental Health	Model 10 plus stress invariantly predicting mental health	860.59	70	0.87	0.89	0.08
Model comparisons		$\Delta\chi^2$	Δdf		P	
1 vs 3		201.01	4		<0.001	
3 vs 4		382.46	16		<0.001	
4 vs 5		113.69	16		<0.001	
5 vs 6		80.47	18		<0.001	
5 vs 7		3.09	12		0.62	
7 vs 8		13.13	12		0.36	
8 vs 9		9.94	12		0.62	
9 vs 10		5.28	3		0.15	
10 vs 11		7.78	3		0.05	
10 vs 12		3.24	3		0.21	

*NNFI, Non-Normed Fit Index; CFI, Comparative Fit Index; SRMR, standard root-mean-square residual.

†Nonnested comparison to model 1 performed by using Akaike's information criterion (AIC), with the preferred model having a smaller AIC. Model 1 AIC = 1,619.08; model 2 AIC = 2,340.74.

‡Model adjustment not carried forward in subsequent comparisons because of untenable invariance constraints (see model comparisons).

Occupational Stress (model 8) and Invariant Mental Health models (model 9) created no detriment to overall fit when cross-hospital equivalency was specified for the direct effects of organizational climate on occupational stress and mental health. Three final models assessed the invariance of interrelations between efficiency, employee stress, and mental health. The Efficiency to Stress model (model 10) constrained to equivalency the direct relationships between efficiency and occupational stress, with no resulting detriment to overall fit. In the Efficiency to Mental Health model (model 11) direct relationships between efficiency and mental health were constrained,

though χ^2 fit was significantly reduced and indicated unique (ie, non-invariant), direct relationships between these two variables. Finally, adding an equivalency constraint between employee stress and mental health in the Invariant Stress to Mental Health model (model 12) did not reduce overall model fit. We thus settled on a final model in which (1) interrelations between measures of organizational climate differed across hospitals, (2) relationships between organizational climate and each of efficiency, occupational stress, and mental health were similar across hospitals, (3) the direct relationship between efficiency and mental health differed across hospitals, and

TABLE 4. Within-Group Noninvariant Model Estimates

	1	2	3	4
Hospital A (<i>N</i> = 1,772)				
1. Social climate	—			
2. Participation	0.39*	—		
3. Goal clarity	0.32*	0.44*	—	
4. Feedback	0.35*	0.33*	0.33*	—
Efficiency to mental health	0.06**			
Hospital B (<i>N</i> = 487)				
1. Social climate	—			
2. Participation	0.48*	—		
3. Goal clarity	0.42*	0.46*	—	
4. Feedback	0.35*	0.48*	0.34*	—
Efficiency to mental health	0.10**			
Hospital C (<i>N</i> = 1707)				
1. Social climate	—			
2. Participation	0.44*	—		
3. Goal clarity	0.33*	0.45*	—	
4. Feedback	0.28*	0.36*	0.36*	—
Efficiency to mental health	0.10***			
Hospital D (<i>N</i> = 1350)				
1. Social climate	—			
2. Participation	0.44*	—		
3. Goal clarity	0.35*	0.52*	—	
4. Feedback	0.35*	0.46*	0.49*	—
Efficiency to mental health	0.16***			

P* < 0.05; *P* < 0.01; ****P* < 0.001.

(4) relationships between efficiency and occupational stress, and between occupational stress and mental health were similar across hospitals.

Figure 1 provides the standardized invariant path estimates obtained for the final structural model as well as the average proportion of variance explained in each of the health and efficiency measures. As hypothesized, there were positive and significant relationships between measures of organizational climate and efficiency. Direct relationships between organizational climate and occupational stress were significant and negative for participation and goal clarity and were not significant for either social climate or performance feedback. Direct relationships between organizational climate and mental health were all in the expected direction, although these associations were significant only for social climate and participation, and not for goal clarity or performance feedback. The invariant relationships between efficiency and occupational stress, and between occupational stress and mental health were both significant and in a theoretically expected negative direction.

Table 4 summarizes noninvariant path estimates that were obtained for the final model. Interrelations between the four indicators of organizational climate (ie, social climate, participation, goal clarity, and performance feedback) were all significant and in the expected direction for each of the four samples. Thus, organizational climate interrelations differed across hospitals only in terms of strength. To confirm mediated relationships between measures of organizational climate, efficiency, occupational stress, and mental health for each of our four hospitals, we calculated total and indirect effects for the final structural model. As shown in Table 5, the indirect effect and total effect of organizational climate variables on occupational stress were generally comparable in magnitude, and all were significant and negative. Likewise, the indirect and total effects of organizational climate on mental health were significant, positive, and generally similar in magnitude, although the total effect of feedback on mental health was significant only for hospital D.

DISCUSSION

In this study, we examined whether pathways linking organizational climate to occupational stress and mental health were invariant, that is, similar, across four hospitals. In addition, we examined whether mental health effects of organizational climate were

TABLE 5. Standardized Within-Group Indirect and Total Effects on Occupational Stress, and Mental Health

	Occupational Stress							
	Hospital A		Hospital B		Hospital C		Hospital D	
	IE	TE	IE	TE	IE	TE	IE	TE
Social climate	−0.05*	−0.03*	−0.05*	−0.03*	−0.05*	−0.03*	−0.05*	−0.03*
Participation	−0.04*	−0.37*	−0.03*	−0.37*	−0.03*	−0.37*	−0.03*	−0.37*
Goals	−0.04*	−0.13*	−0.04*	−0.13*	−0.04*	−0.13*	−0.04*	−0.13*
Feedback	−0.02*	−0.03*	−0.02*	−0.03*	−0.02*	−0.03*	−0.02*	−0.03*
Efficiency	—	−0.16*	—	−0.16*	—	−0.16*	—	−0.16*

	Mental Health							
	Hospital A		Hospital B		Hospital C		Hospital D	
	IE ^a	TE	IE	TE	IE	TE	IE	TE
Social climate	0.03*	0.19*	0.04*	0.20*	0.04*	0.20*	0.06*	0.22*
Participation	0.09*	0.19*	0.10*	0.19*	0.10*	0.19*	0.11*	0.21*
Goals	0.05*	0.07*	0.06*	0.09*	0.06*	0.09*	0.07*	0.10*
Feedback	0.01*	0.02	0.02*	0.03	0.02*	0.03	0.03*	0.03*
Efficiency	0.04*	0.09*	0.04*	0.13*	0.04*	0.13*	0.04*	0.19*

IE, indirect effect, TE, total effect.

**P* < 0.01 or better.

mediated by perceived organizational efficiency. We designed and tested a theoretical path analysis that was based on prior prospective single-organization studies.^{29,35} Thus, although the current study was cross-sectional and involved four large hospitals, we used an empirically supported Cause-and-Effect model. Path analysis best supported a model in which organizational efficiency partially mediated links between organizational climate, occupational stress, and mental health. This study, the first to our knowledge to capitalize on use of the same validated survey instrument in multiple organizations within the same industry, suggests a need to further refine models linking organizational climate to occupational stress and employee mental health.

Although prior research has reported links between efficiency and occupational stress,^{4,39} we know of no large-scale study pointing to an apparent critical mediating role of organizational efficiency on mental health. Organizational efficiency is a highly malleable factor per se and of paramount importance for overall competitiveness of organizations.^{3,30,54,55} Our findings suggest that improving efficiency may also reduce employee stress and improve mental health. Directional links between organizational efficiency and mental health are supported by two prospective studies. In one study, we introduced individual-based stress management without observing any effects on perceived organizational efficiency.²⁹ In the other study, enhanced organizational efficiency decreased employee self-rated and biological stress, and improved mental health.³⁵ The current results, although a correlational study, suggest the consistency of this link across multiple organizations.

Four distinctly defined and operationalized organizational climate factors (social climate, performance feedback, participation, and goal clarity) were all related to efficiency.

Hospital-specific results revealed that the interrelationships between the four organizational climate factors differed across hospitals. This is especially interesting in light of the finding that relationships between organizational climate and each of efficiency, occupational stress, and mental health were invariant, that is, the same, across hospitals. Nevertheless, the direct and invariant relationships between organizational climate and both occupational stress and mental health were not significant for all four climate variables. Of the four, only participation was significantly directly associated with both occupational stress and mental health in all four hospitals. Prior studies have also found beneficial effects on mental health among employees who feel involved in decision-making processes.⁵⁴

LIMITATIONS

There are several features of the present study that mandate a cautious interpretation of results. First, this study is limited by the use of scale-level rather than item-level information. Using subscale-level data on identical psychological climate measures from four large hospitals provided a unique opportunity to assess structural invariance. Nonetheless, we were unable to specify an underlying measurement model with the information provided. Nevertheless, we were able to confirm the structure by using individual and item-level employee satisfaction data from a subsequent survey in one of the participating hospitals; please see appendix. Concerns about moderate overall fit are attenuated to some extent by also relying on formal model-comparison strategies,⁵⁶ which suggested the final model as the most tenable among those tested. For further discussions of the confirmatory factor analysis, the method used in the present study, please refer to reference 57. A second general limitation concerns the interpretation of causality. Although the use of covariance structure path analysis afforded cross-organizational comparisons of equivalency, this method did not establish causal direction. Furthermore, the analytical model was informed by prior prospective research reporting that concrete measures to enhance efficiency decreased organizational stress.³⁵ Nevertheless, although we suggest that organizational climate precedes efficiency, the

reverse possibility is also feasible as is the possibility that currently unidentified third variables determine both measures.⁵⁸ A third limitation concerns the use of one and the same instrument, QWC, which is based on perceived rather than objective measures of occupational stress, mental health, and efficiency. Nevertheless, prior research using the QWC has demonstrated that employee perceptions of organizational climate relate to biological stress markers and objective production data.^{29,35} Thus, there is reason to assume that using employees' self-reports of occupational stress, efficiency, and mental health provides at least some valid consensus with more objective measures. A final limitation concerns the concept of perceived efficiency, which may not be an accurate appraisal of how well an organization functions. Nevertheless, the items in the efficiency scale were developed through research in large samples of health care professionals⁵⁹ and have been shown to correlate significantly with more objective efficiency measures.³⁵

CONCLUSION

This research demonstrates that there are consistent relationships across organizations between organizational climate and organizational efficiency, occupational stress, and employee mental health. In addition, the study suggests that stress and mental health effects are partially mediated by the effect of organizational climate on perceived organizational efficiency. Prior studies have documented the association between occupational stress and decreased employee mental health and well-being. This study extends prior research in demonstrating not only that efficiency explains some of the effect of organizational climate on occupational stress and mental health, but also that this effect is apparently robust across organizations. Our findings are of special relevance in proposing evidence-based organizational health and performance interventions. These results suggest that interventions targeting both the traditional psychosocial environment and the organizational efficiency might contribute to both decreased employee stress and enhanced mental well-being. In addition, organizational performance is likely to improve.

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Appendix

¹To further confirm the factor structure of the seven QWC scales, we obtained an additional data set from Springlife. This new data were collected in 2008 at hospital A ($N = 2256$) and contained individual item-level information for the seven scales that were used in this manuscript. These new data were subjected to exploratory factor analysis by using principle axis factoring and Varimax rotation. Seven factors with eigenvalues greater than 1 emerged. There was no evidence of cross-loaded items, and items all loaded onto a theoretically expected construct (eg, factor 1 was composed only of the four items representing the Goal Clarity subscale). We also subjected these new data to a confirmatory factor analysis by using LISREL 8.8. A moderate-to-good fit was obtained for the hypothesized measurement model ($\chi^2 = 6371.29$, $P < 0.01$, NNFI = 0.86, CFI = 0.87, SRMR = 0.06). Factor loadings were all in the expected direction and were significant at $P < 0.001$ or better. Importantly, the seven-factor measurement model fit was far superior to a single-factor measurement model ($\Delta\chi^2 = 22193.19$, $P < 0.001$, NNFI = .42, CFI = 0.47, SRMR = 0.12), and also a two-factor measurement model in which the four psychosocial climate variables specified a

single variable ($\Delta\chi^2 = 11,367.35$, $P < 0.001$, NNFI = 0.61, CFI = 0.64, SRMR = 0.10).

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